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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,611	01/16/2004	Johann Karner	H60-107 DIV	8162

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EXAMINER	
LUND, JEFFRIE ROBERT	
ART UNIT	**PAPER NUMBER**
1716	

MAIL DATE	DELIVERY MODE
12/03/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/759,611	KARNER ET AL.	
	Examiner	Art Unit	
	Jeffrie R. Lund	1716	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 November 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/045,855.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 20, 22, 23, and 25-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karner et al, US Patent 5,753,045, in view of Matsumoto, US Patent 5,340,621.

Karner et al teaches a vacuum treatment installation, comprising: a vacuum treatment chamber 10; a plasma discharge configuration in the chamber; a gas supply configuration 29 for supplying a carbon-, boron-, nitrogen-, hydrogen-, silicon-containing gas to the chamber; the DC plasma discharge configuration having a plasma beam directional axis (A) extending from a hot or cold cathode 14 to the anode 20, the

plasma beam with a plasma density distribution having a maximum along said axis and dropping with increasing radial distance from said axis, said discrete plasma beam forming said treatment plasma; at least two deposition configuration mounted on support 24 facing each other for establishing a surface to be treated being positioned along a surface 24, said surface being exposed extending along a substantial section of said plasma beam directional axe, each area of said surface being exposed having a distance to the nearest of said plasma beam directional axis which is substantially shorter than said distance between said cathode and anode electrodes; said surface being exposed to between 5% and 10% of plasma density of the beam along said nearest axes (Paragraph 19); a gas suction configuration 26 connected to the chamber; the gas supply configuration 29 and the gas suction configuration 26 being connected to the vacuum chamber such that a gas flow through the chamber is generated which is substantially parallel to said plasma beam directional axe (A); and a Helmholtz coil arrangement adapted to generate a magnetic field that is substantially parallel to the plasma beam direction axis. (Figure 3) The deposition configuration is stationary with respect to said plasma beam directional axis.

Karner et al differs from the present invention in that Karner et al does not teach: at least two plasma beam discharge configurations, each having a distinct and independent pair of cathode and anode electrodes defining said plasma beam directional axes of said at least two plasma beam discharge configurations being one beside the other and mutually parallel and each generating a plasma beam, the distance between said cathode and anode electrodes of each of said pairs being

substantially larger than the mutual distance of said parallel beam directional axes; said mutual distance of said axes being so that the plasma density substantially midway between said axes has a local minimum; or the at least one deposition configuration which is exposed to said at least two plasma beams as generated by said at least two plasma beam discharge configurations each area of said surface being exposed having a distance to the nearest of said at least two plasma beam directional axes which is substantially shorter than said distance between said cathode and anode electrodes of said pairs.

Matsumoto et al teaches a vacuum treatment installation that includes: a vacuum chamber 1 and at least two plasma beam discharge configurations 7, each having a distinct and independent pair of cathode 5 and anode 6 electrodes defining said plasma beam directional axes of said at least two plasma beam discharge configurations being one beside the other and mutually parallel and each generating a plasma beam, the distance between said cathode and anode electrodes of each of said pairs being substantially larger than the mutual distance of said parallel beam directional axes; and the at least one deposition configuration 19 which is exposed to said at least two plasma beams as generated by said at least two plasma beam discharge configurations each area of said surface being exposed having a distance to the nearest of said at least two plasma beam directional axes which is substantially shorter than said distance between said cathode and anode electrodes of said pairs.

The motivation for adding the second plasma beam discharge configuration to the apparatus of Karner et al is to increase the amount of plasma so that more or larger

substrates can be coated as taught by Matsumoto et al. Furthermore, it has been held in *In re Harza* (124 USPQ 378) that the duplication of parts is obvious. (See MPEP 2144)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a second plasma beam discharge configuration to the apparatus of Karner et al as taught by Matsumoto et al.

The Examiner notes that if a second plasma beam is formed in the apparatus of Karner, as discussed above, the mutual distance of said axes will inherently form a plasma in which the plasma density substantially midway between said axes has a local minimum.

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karner et al and Matsumoto as applied to claims 20, 22, 23, and 25-32 above, and further in view of Okamoto, US Patent 6,017,396.

Karner et al and Matsumoto et al differ from the present invention in that they do not teach that the deposition configuration is two parallel surfaces between two plasma discharge configurations.

Okamoto teaches a deposition configuration that consists of two parallel surfaces 15 between two plasma discharge configurations 11, 12. (Figures 2 and 3)

The motivation for replacing the deposition configuration of Karner et al and Matsumoto et al with the deposition configuration of Okamoto is to enable the apparatus of Karner et al and Matsumoto et al to process two flat surfaces simultaneously as taught by Okamoto. Furthermore, it has been held that the simple substitution of one

known element for another to obtain predictable results is obvious (see *KSR International Co. v. Teleflex Inc.*).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the deposition configuration of Karner et al and Matsumoto et al with the deposition configuration of Okamoto.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karner et al and Matsumoto as applied to claims 20, 22, 23, and 25-32 above, and further in view of David, US Patent 6,015,597.

Karner et al and Matsumoto et al differ from the present invention in that they do not teach that the deposition configuration is configured as a powder capture surface.

David teaches a deposition configuration configured as a powder capture surface 7. (Figure 1)

The motivation for replacing the deposition configuration of Karner et al and Matsumoto et al with the deposition configuration of David is to enable the apparatus of Karner et al and Matsumoto et al to produce powder products as taught by David.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the deposition configuration of Karner et al and Matsumoto et al with the deposition configuration of David.

Response to Amendment

6. Applicant's arguments filed October 4, 2010 have been fully considered but they are not persuasive.

In regard to the argument that Karner et al and Matsumoto et al teach using a constant density loci and that the present invention does not use a constant density loci, the Examiner disagrees. The selection of the constant loci, described in the argument, is an attempt to provide uniform plasma density at the surface of the substrates by placing the substrates at a specific location (i.e. constant loci) in the plasma. Claim 20 requires that the substrate surface be exposed to at most 20% of the plasma density. Thus claim 20 requires constant loci of at most 20%. In fact, the requirements of the present invention are identical to those taught by Karner et al. Therefore the combination is valid.

In regard to the argument that the combination would lead to maintaining two distinct loci, the Examiner disagrees. First, even if two loci were used, it would still read on the claimed invention, because the claims do not limit the number of loci. Second, two loci is only one to two possibilities. The other possibility is a single loci. The number of loci is based on the distance between the beams and the percentage of plasma density desired. If the beams are space far enough apart that the plasma density at the center of the spacing is less than or equal to the desired plasma density, then the only choice is to form loci around each beam at the desired concentration. If, however, the plasma density is greater than the desired plasma density a single loci is formed at the desired plasma density. Third, it would be a simple matter to measure the plasma density of the multiple plasmas and place the substrates at positions where the plasma had a density of less than 20%, 10%, or 5%. Furthermore, one of ordinary skill in the art would expect two plasma beams to interact and to form areas in which the plasma

density is a result of both plasmas and the resulting areas of 20%, 10%, or 5% would be increased, thus allowing larger substrates to be processed.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Friday (9:00 am -5:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrie R. Lund/
Primary Examiner
Art Unit 1716

JRL
12/2/10